

"Made available under NASA sponsorship
in the interest of early and wide dis-
semination of Earth Resources Survey
Program information and without liability
for any use made thereof."

E7.4-10552

CR-138442

STUDY OF TIME LAPSE PROCESSING
FOR DYNAMIC HYDROLOGIC CONDITIONS

Sidney M. Serebreny
Stanford Research Institute
333 Ravenswood Avenue
Menlo Park, California 94025

16 May 1974
Type I Progress Report for the
6 March - 6 May 1974

Prepared for
Goddard Space Flight Center
Greenbelt, Maryland 20771

(E74-10552) STUDY OF TIME LAPSE DATA
PROCESSING FOR DYNAMIC HYDROLOGIC
CONDITIONS Progress Report, 6 Mar. - 6
May 1974 (Stanford Research Inst.) 5 p
HC \$4.00 CSCL 08H G3/13 00552
N74-26865
Unclass

TYPE I PROGRESS REPORT

- A) Title: STUDY OF TIME-LAPSE DATA PROCESSING FOR DYNAMIC HYDROLOGIC CONDITIONS

ERTS-A PROPOSAL 342-B

- B) GSFC ID PR154
- C) Problems Impeding Progress - None
- D) Accomplishments:

(I) During Report Period

(a) Equipment

No modifications or additions have been made to ESIAC during the period covered by this Progress Report.

(b) Data Measurements:

- * For Dr. M. F. Meier (INO45), U.S. Geological Survey, Tacoma, Washington

Correspondence with Dr. Meier indicates that the areas originally measured as Basin 1330, 1345, 1895 and 4570 were incorrect - being too small in size. A new set of boundaries were forwarded from Dr. Meier and remeasured for all useable pictures between Cycle 0 (29 July 1972) through Cycle 24 (8 October 1973). The procedures used were those outlined in the Type II Progress Report, dated 16 March 1974.

- * For Dr. R. M. Turner (IN411), U.S. Geological Survey, Tucson, Arizona

Work continued on the evaluation of vegetation coverage in Arizona desert area - specifically the region termed "Sabino Canyon" - east of Tucson. The procedures are those outlined in the Type II Progress Report, dated 16 March 1974.

- For Dr. C. C. Reeves (IN168), Texas Tech University, Lubbock, Texas

No work was processed for Dr. Reeves during this period.

- For Dr. E. J. Pluhowski (INO58), USGS-WRD, Arlington, Virginia

No work was processed for Dr. Pluhowski during this period.

- For Mr. F. Ruggles (IN395), USGS-WRD, Hartford, Connecticut

No work was processed for Mr. Ruggles during this period.

- For Dr. E. Hollyday (IN389), USGS-WRD, Nashville, Tennessee

No work was processed for Dr. Hollyday during this period.

C) Visits and Presentations

Mr. Wm. E. Evans, Staff Scientist, Stanford Research Institute presented a paper at the Western Snow Conference, Anchorage, Alaska, April 16-19, 1974 concerning SRI measurement Techniques with particular references to snow cover seen on ERTS Imagery. The abstract of the paper is as follows:

PROGRESS IN MEASURING SNOW COVER FROM ERTS IMAGERY

Wm. E. Evans
Stanford Research Institute
Menlo Park, California 94025

Abstract

A hybrid of digital and analog analysis techniques are being employed to determine the accuracy with which snow area and temporal change in snow area can be determined from ERTS satellite imagery.

The principal analysis tool is an Electronic Satellite Image Analysis Console (ESIAC) which permits display of time-lapse sequences of color composite images on a color TV monitor. Binary snow maps are generated electronically, superimposed on the image display for any necessary human editing, then measured for area in a digital counter. Results are checked against high altitude aircraft photography.

Bright snow is relatively easy to measure. Snow in shadow or illuminated at low incidence angles is harder to identify unambiguously. Several potential solutions for this problem and for the problem of snow-tree mixtures are being studied. A time-lapse movie showing a full year of ERTS imagery of a typical mountain snowfield will be shown.

Mr. Wm. E. Evans also visited with Dr. M. F. Meier, USGS, Tacoma, Washington on 1 May 1974 for the purpose of reviewing the data generated for Dr. Meier.

(II) Plans for Next Reporting Period

(a) Equipment

No additions or modifications to the existing ESIAC are anticipated.

(b) Data Measurements

- For Dr. M. F. Meier

Work will continue on the evaluation of snow in the Olympic Peninsula region of the State of Washington.

- For Dr. R. M. Turner

Work will continue on the evaluation of plant coverage in the Sabino Canyon and Benson Areas in Arizona for the imagery on-hand.

- For Mr. F. Ruggles

No work is anticipated

- For Dr. E. Pluhowski

Dr. Pluhowski is scheduled to visit SRI during the period 7-9 May 1974 for the purpose of measuring sediment plumes in Lake Ontario.

- For Dr. E. Hollyday

No work is anticipated

(c) Visits and Presentations

None are anticipated or planned